Performance Evaluation and Analysis Consortium (PEAC) End Station

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2006 NCCS Users Meeting
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JICS, Bldg. 5100, Room 125
Oak Ridge National Laboratory
Oak Ridge, TN

Co-Principal Investigators

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Bronis R. de Supinski	Lawrence Livermore National Laboratory
Jack Dongarra	University of Tennessee
William D. Gropp	Argonne National Laboratory
Jeffrey K. Hollingsworth	University of Maryland
Allen Malony	University of Oregon
John Mellor-Crummey	Rice University
Barton B. Miller	University of Wisconsin
Leonid Oliker	Lawrence Berkeley National Laboratory
Daniel Reed	University of North Carolina
Allan Snavely	University of California, San Diego
Jeffrey S. Vetter	Oak Ridge National Laboratory
Katherine Yelick	University of California, Berkeley

Consortium Goals

1. Evaluate the performance of NLCF systems using standard and custom micro-, kernel, and application benchmarks;
2. Port DOE-supported performance tools to NLCF systems, making these available to NCCS users, and further develop the tools so as to take into account the scale and unique features of the NLCF systems;
3. Validate the effectiveness of performance modeling methodologies, modifying them as necessary to improve their utility for predicting resource requirements for production runs on the NLCF systems;
4. Analyze performance and help optimize SciDAC application codes that will be running on the NLCF systems.
5. Provide access to other performance researchers who are interested in contributing to the performance evaluation of the NLCF systems or in porting complementary performance tools of use to the NCCS user community.

Rules and Expectations

1. Low visibility (no production runs!)
2. Open and fair evaluations
3. Wiki for posting and maintaining results

Current Projects

- PAPI library development and testing
  - Terpstra - Univ. of Tennessee
- PETSc testing and application benchmarking
  - Balay, Kaushik - Argonne National Lab.
- Development of scalable performance tool technology and evaluation of overhead of dynamic instrumentation on lightweight kernel systems
  - Roth - ORNL
- mpiP support and development
  - Roth - ORNL

Current Projects

- Development of HPC Challenge benchmarks
  - Luszczek - Univ. of Tennessee
- Performance analysis of the Coupled Climate System Model using the TAU performance system
  - Shende - Univ. of Oregon; Ham, Worley - ORNL
- Architecture and programming model evaluations using Apex-Map
  - Shan - Lawrence Berkeley National Lab.
- Evaluation and development of SPIKE parallel narrow banded linear system solver
  - Sayeed - Purdue University

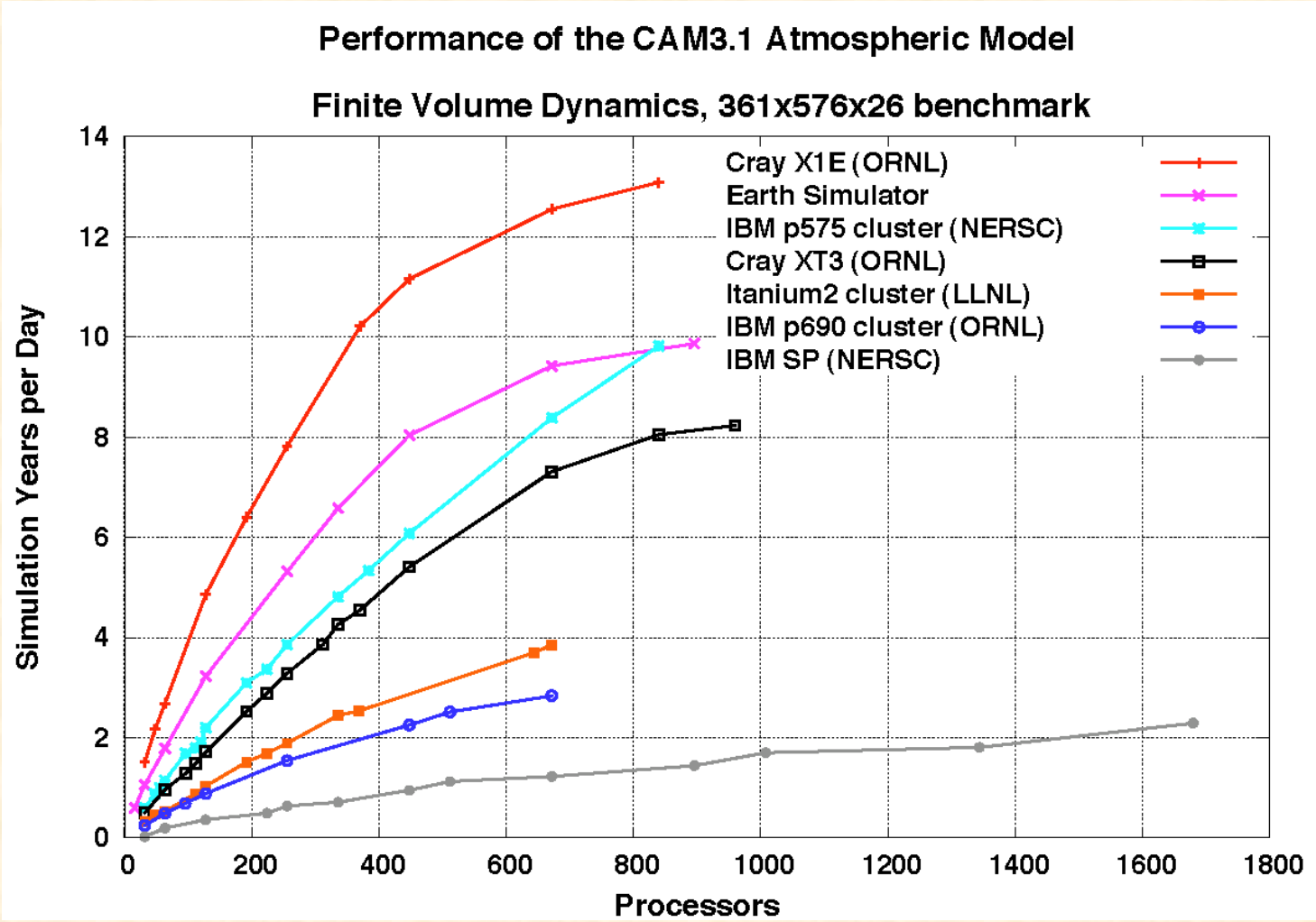
Current Projects

- System and application performance characterizations and evaluations using full applications:
  - NERSC Application Benchmark Suite
    - Carter, Lijewski, Canning, Oliker, Shan - Lawrence Berkeley National Lab.
  - BeamBeam3d
    - Shan - Lawrence Berkeley National Lab.
  - PERC SciDAC applications, beginning with CAM and MILC
    - Zhang, Tilson, Lander, Newton - Univ. of North Carolina
  - ORNL Application Benchmark Suite
    - Bhatia, McCurdy, Roth, Smith, Vetter, Worley - ORNL
  - SPEC HPC Benchmarks
    - Sayeed - Purdue Univ.

For More Information ...

- Contact Pat Worley (worleyph@ornl.gov) for information on how to apply for a PEAC account.
- "Soon" there will be a web portal and wiki describing goals and current PEAC end station activities.

Example Evaluation Results



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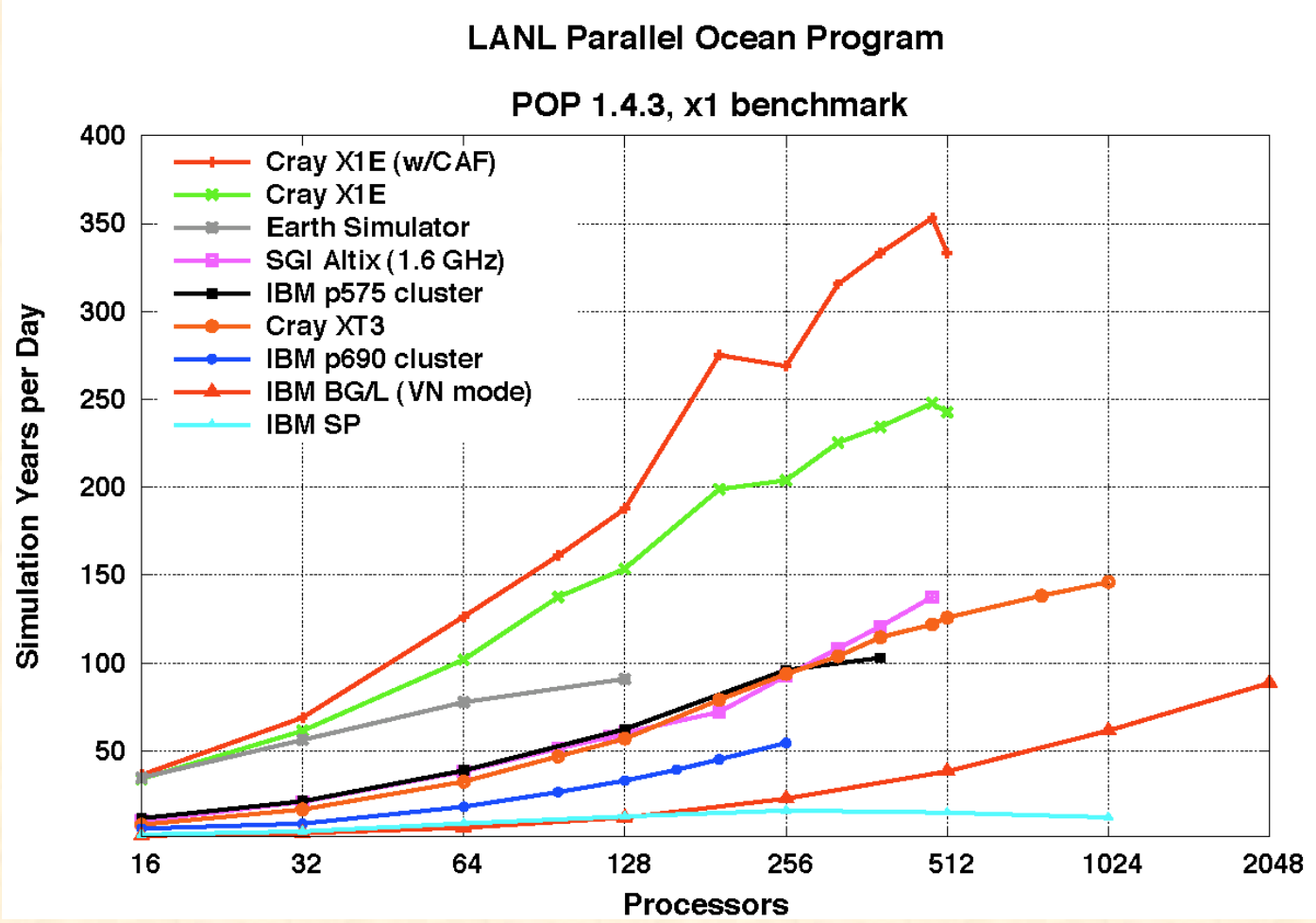

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